

Discovery Program 2004 Announcement of Opportunity Q&A

Updated April 24, 2004

This document may be found by selecting "AO Q&A" at <http://discovery.larc.nasa.gov/discovery>

Other questions may be addressed to Susan Niebur, Discovery Program Scientist, susan.m.niebur@nasa.gov. Answers will be posted at the above URL twice a week, sorted by category and entered into the change log below.

Categories of Questions

- Science (S)
- Technology (T)
- Management (M)
- Proposals (P)
- Launch Vehicles and Secondary Payloads (LV)
- International Participation (I)
- Missions of Opportunity (MO)
- Other (O)

Log of Questions

April 22: T-1 through T-4, M-1 through M-3, P-1 through P-7, LV1 through LV-5, I-1

Technology

T-1. Regarding power supplies, can mini-RTGs be used? Mini-RHUs?

No. While we are aware that there are concepts for mini-RTGs in development, none are projected to be complete for a 2009 launch.

T-2. Can the JPL initiative to produce an impact hardened mini-RTG be incorporated into the mission design?

No. See Question T-1.

T-3. We are considering the application of small Radioactive Power Sources to a mission. At present, some RPS concepts use RHU's, while others are built around somewhat larger sources. What is the maximum amount of radioactive material that's allowable in a Discovery proposal?

The 2004 Discovery Program AO does not allow small RPSs. As stated in section 5.3.2, only RHUs and radioactive material sources for science instruments are permitted.

T-4. When will the reference documents “Specifications for Radioisotope Heater Units (RHUs) for Discovery” and “Guidelines and Criteria for the Phase A Concept Study” be available?

The RHU document is in final review and will be posted to the Discovery Program Library next week. The Guidelines and Criteria document will be posted in mid-May.

Management

M-1. What is the procedure for involving industrial partners?

The Discovery Program encourages teaming arrangements that utilize industry participation to the fullest extent possible, but leaves the specifics of such arrangements up to the PI and his/her team (compliant with NPR 7120.5B, found in the DPL).

M-2. Can the Discovery Program explain the rationale for having the JPL Program Office award and administer contracts with all successful offerors? [If a JPL burden is applied to contracts outside of JPL, doesn't this provide an unfair cost advantage to JPL offerors?]

The Discovery/New Frontiers Program Office is responsible for Program management of all Discovery missions. In order to effectively perform in this capacity, the Discovery/New Frontiers Office will administer contracts with successful proposal teams. There will be no costs applied to non-JPL missions that are not applied to JPL-proposed missions.

M-3. Section 5.4.2 says, “Each Discovery investigation proposal must have a fully qualified and experienced PM who will oversee the technical implementation of the project. This PM must be named at time of proposal.” Surely you did not mean that for Step 1. That would be a major break from the past.

Yes, it is. This is a requirement of the 2004 Discovery AO, as it was for the 2003 New Frontiers AO. Each proposal must include a named PM. Please note also that after proposal, any change “requires concurrence by the NASA Discovery Program Management.”

Proposals

P-1. What will the Discovery Program do to limit the risk inherent with increasingly back-loaded funding profiles? [The funding profile appears to have reduced early funding with respect to New Frontiers and Mars Scout Step 1 AOs.]

Experience has shown that more time and funding may be needed during the requirements definition in Phase A and B. The new profile includes significant increases in both Phase A and B as compared to the 2000 Discovery AO. The 2004 Discovery AO also shows proportionately more funding available in the first two years than either Mars Scout or New Frontiers. The proposer is cautioned about comparing absolute amounts between AO cycles, as the funding available to and from NASA is distributed by Fiscal Year; proposers are free to distribute that between phases as they wish. The proposer is further cautioned when comparing these numbers, as missions begin Phase B during different months of the year; since Mars Scout began theirs in August 03, and Discovery is scheduled to begin theirs in November 05, even more money per month is available to Discovery than first appears.

P-2. Can the Discovery Program confirm the software IV&V costs are not to be included in the NASA OSS Cost cap?

Yes. The costs for the NASA IV&V Facility in West Virginia will be covered by NASA through the Discovery Program, but outside each project's NASA OSS Cost Cap.

P-3. Can the Discovery Program explain the rationale for adding a clause to enable acceptance of late proposals?

Yes. The language regarding late proposals is mandated by the NASA Federal Acquisitions Regulations (FAR) Supplement 1815.208 as well as NASA FAR Supplement 187.705-1.

P-4. Should the use of "may" with respect to "Navigation services" be interpreted to mean Proposers "may" obtain "Navigation services" from other than JPL?

Yes.

P-5. Should the use of "may" with respect to "Navigation services" be interpreted to mean JPL also "may" refuse to provide services?

This section (5.3.3) refers to the use of the Deep Space Network (DSN). If a selected mission requires the use of the DSN (and this use was budgeted in the proposal), NASA HQ will work with the JPL DSN management to ensure availability of the DSN.

P-6. Low Risk is referenced in Section 5.1 as critical to selectability, but criteria for determining low risk are not provided. What criteria will be used to evaluate risk?

A low risk mission is one whose required resources (schedule and funding reserves; reserves and margins on physical resources such as mass, power and data; descope options; fallback plans; and personnel) fit well within the resources available. See also the TMC presentation from the Preproposal Conference.

P-7. [The amounts listed in Appendix F sum to \$314M] This converts to FY 2004 \$290.4M. This doesn't seem to include phase E, so it would seem that a minimum of FY 2004 \$69.6M is reserved for phase E. Also, the numbers in the equivalent appendix of the 2000 Discovery AO were higher even though the cost cap then was supposed to be lower. Is Appendix F (the funding profile) really correct? And is the real cost cap effectively less than FY 2004 \$360M, unless you can manage to spend nearly \$70M in phase E?

Yes, Appendix F is really correct. However, the real cost cap is indeed \$360M. The Discovery Program has limited funds in any given fiscal year, and this distribution is calculated to fit within the available resources, while providing the proposer with an appropriate funding profile. Please note that FY2010 begins on October 1, 2009 and the end of the launch window is December 31, 2009. A spend rate for this time period equivalent to that of FY2009 would consume approximately \$23M of the FY2010 funds, leaving a more reasonable amount for Phase E operations.

No fixed FY2010 budget listed because the NASA forecast for specific budgets beyond FY2009 are not yet available. See P-1 for further discussion of this topic, but please understand that the recent cost cap increase was implemented to cover the increase in costs – NOT to allow a greater purchasing power for Discovery missions. Discovery missions are charged with doing focused scientific investigations, and the proposer would do well to concentrate on a focused topic achievable within the stated funding constraints.

Launch Vehicles

LV-1. We are looking at a mission proposal in which the allowable launch mass is under 700-kg. The ELV performance website now states that payloads that are less than 680-kg "may require NCS modifications". In the recent past, the threshold in which light payloads required NCS modifications was 567-kg. Is this change real, and if so what was the reason for the change?

The current website number is the guaranteed contractual number with margin to ensure that the NCS can handle a specific spacecraft. Any lower numbers are not contractual and should not be used as such. The 567 kg number stated may have been a specific spacecraft configuration. The issue is the ability of the 3rd stage NCS to control coning during the end of the 3rd stage burn with a light spacecraft.

Example: If a certain spacecraft mass is in the range of 445 to 465 kg and is also a very flat (disk-like), very spacecraft specific, they would have to fly a 33 inch tall PAF to adjust the mass properties characteristics to bring them within the family of previously flown configurations. The mass penalty would be the additional PAF height. (33 inch (new) - 12 inch (normal)). This issue would be very spacecraft configuration dependent and would have to be addressed on a spacecraft specific basis. The current website number is the plan to number you should use. If a deviation or further NCS details are required, a mission unique funded study may have to be initiated.

LV-2. I was told that Missions of Opportunity for Instruments that would utilize the International Space Station or that would be launched by the Space Shuttle were specifically prohibited in the current Discovery Program AO. I have looked through this AO several times and can not find anything to substantiate such a statement. I may be looking in the wrong place, or I may have been misinformed. Can I propose a Mission of Opportunity to build and fly an instrument to be mounted on the International Space Station that would address one or more of the scientific goals of the Solar System Exploration Division?

The 2004 Discovery AO does not permit the use of the Space Shuttle. Missions must be launched using ELVs (Sections 1.1 and 5.11.2). Missions of Opportunity to the International Space Station are not specifically prohibited, but the Space Shuttle may not be used as a launch vehicle.

LV-3. What will the Discovery Program do to limit the impact to proposed missions of steadily increasing LV costs?

The Discovery Program has increased the Cost Cap for the 2004 Discovery AO from \$299 (FY99\$) to \$360 (FY04\$) in order cover the increased launch vehicle costs quoted in the DPL, inflation, and other factors. The Discovery Program will, as in years past, cover any increase (or benefit from any decrease) in the cost of the launch vehicle after selection.

LV-4. The reduced inflation index further increases the LV costs in FY04 dollars with respect to the New Frontiers Step 1 AO.

The Discovery Program uses the “NASA New Start Inflation Index” required by NASA for new procurements.

LV-5. Are the extra costs indicated in the ELV document in the DPL applicable to use of any radioactive material?

Yes, for planning purposes, this is a fully inclusive cost for all tasks connected with radioactive material. (But please also read answers to questions T-1, T-2, and T-3 above.)

International Partnerships

I-1. Are foreign partners/collaborators allowed for Discovery Missions?

Yes. See Section 5.10 of the AO for an overview.